POLYAKOVA, Ye.A.; TRET'YAKOV, V.D.

Investigation of meteorological visibility during snowfalls. (MIRA 13:6)
Trudy GGO no.100:53-57 '60.
(Visibility) (Snow)

POTAPOV, S.A., zamestitel' zaveduyushchego; TRET'YAKOV, V.D., nachal'nik sektora ekspluatatsii zdaniy.

Some problems of planning, constructing and using hospital buildings. Gor. khoz.Mosk. 27 no.11:3-4 N '53. (MLRA 6:11)

1. Mosgorzdravotdel. (Moscow--Hospitals)

TRET'YAKOV, V.D. (Kazan')

Theory of curves in a biaxial space. Uch.zap.Kaz.un. 115 no.10:15-16 '55. (MLRA 10:5)

(Geometry, Differential)
(Invariants)

ACC NR: AR6024837

AUTHOR: Bekzhanov, G. R.; Brodovoy, V. V.; Gol'dshmidt, V. I.; Zhivoderov, A. B.; Zlavdinov, L. Z.; Ivanov, O. D.; Klechin, I. N.; Kolmogorov, Yu. A.; Bachin, A. P.; Kotyarov, V. M.; Kuz'min, Yu. I.; Kuminova, M. V.; Kunin, N. Ya.; Lyubetskiy, V. G.; Melent'yev, M. I.; Morozov, M. D.; Tret'yakov, V. G.; Tychkova, T. V.; Tsaregradskiy, V. A.; Eydlin, R. A.

TITLE: A schematic geophysical map of Kazakhstan

SOURCE: Ref. zh. Geofizika, Abs. 4G17

REF SOURCE: Sb. Geol. rezul'taty prikl. geofiz. Geofiz. issled. stroyeniya zemn. kory. M., Nedra, 1965, 142-154

TOPIC TAGS: geologic survey, geologic prospecting, map

ABSTRACT: Regional geophysical surveys are conducted in Kazakhstan to divide the territory into tectonic regions, to study its plutonic structure, and to solve some problems of geophysical mapping. The results of these surveys will make it possible to establish structural belts and regions in which minerals are likely to be found. The basic material will be obtained from investigations of the magnetic and gravitational fields in combination with seismic studies. In the magnetic and gravitational fields, tectonic and plutonic seams are isolated which correspond to terraces in the

Card 1/2 UDC: 550.311(574)

ACC NR: AR6024837

Mohorovicic discontinuity. Methods of regional geophysics are used to study the plutonic structure of a folded base, the structure and thickness of sedimentary sheaths, and to indicate prospective petroleum bearing uplifts. [Translation of abstract]
M. Speranskiy

SUB CODE: 08

Card 2/2

SOV/31-60-1-9/20

3(5)

AUTHOR: Tret'yakov, V.G.

TITLE: On the Problem of the Regional Structures of the Eastern Balkhash Region

PERIODICAL: Vestnik Akademii nauk Kazakhskoy SSR, 1960, Nr 1, pp 59-67

ABSTRACT: The author reviews the opinions of a number of scientists on the geological structure of the Eastern Balkhash region, completing them with the data of aerial magnetic survey carried out in this region and the results of geophysical and electric geophysical exploration previously carried out in a part of this territory (Kazgeofiztrest - 1957), he arrives at new conclusions particularly with regard to the Balkhash-Alakul' zone. The magnetic and gravimetric fields of the concerned region fall into three exact zones: a north-east (Tarbagatay), a north-west (Bakanas) and the Central (Balkhash-Alakul') zone. The correlation of the geophysical and geological data shows

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On the Problem of the Regional Structures of the Eastern Balkhash Region

that the changes in the character of the magnetic and gravimetric fields depend on the composition of the rocks as well as on the general structural-tectonic characteristics of the individual areas. The author came to the conclusion that the opinions considering the Alakul' depression as a geological structure which developed according to a uniform plan during the whole Paleozoic is deprived of foundation in the light of the new geophysical data. The present contours of the Alakul' depression are the result of subsidence of the area of depression during the Cenozoic. This process involved the Alakul' platform, the south part of the Bakanas intra-geosyncline and the south-west part of the area of the Tarbagatay anticlinorium. The Alakul' platform of the Paleozoic and Mesozoic appears as a part of an indivisible extensive Balkhash-Alakul' area which offers the characteristics of platform development. From north-east and north the Alakul' platform joins the Tarbagatay anticlinorium and the

On the Problem of the Regional Structures of the Eastern Balkhash Region

Bakanas intra-geosyncline in lines of regional break and overthrust. In a number of cases the overthrust of the outer (with regard to the platform) geosynclinal zones on the platform have a scaly structure. The profile of the Paleozoic and Mesozoic of the Alakul' platform is characterized by the absolutely prevailing occurrence of essentially terrigene sediments, with the exception of the central part of the northern platform edge which during the Post-Tournai stage entered into the geosynclinal period of development (section of an unstable platform). The possibility of large-scale Jurassic development in the area of the Alakul' depression may permit a more optimistic approach to the evaluation of possible petroleum and gas layers in this district. The author mentions the following scientists as having worked on this problem: N.G. Kassin [Ref 1], [Ref 9-12], V.F. Bespalov [Ref 2,3], P.A. Rengarten [Ref 15], B.K. Terletskiy [Ref 16], B.A. Petrushevskiy [Ref 14],

SOV/31-60-1-9/20

On the Problem of the Regional Structures of the Eastern Balkhash Region

V.V. Galitskiy [Ref 6], S.N. Golyshev, B.Ya. Ponomarev.
There are 1 map and 17 Soviet references.

Card 4/4

TRET'YAKOV, V.G.

Problem of regional structures of the eastern Balkhash area.
Vest.AN Kazakh.SSR. 16 no.1:59-67 Ja '60. (MIRA 13:5)
(Balkhash region--Geology, Structural)

L 42121-66

ACC NR: AT6028379 SOURCE CODE: UR/0000/65/000/000/0142/0154 15

AUTHOR: Bachin, A. P.; Bekzhanov, G. R.; Brodovoy, V. V.; Gol'dshmidt, V. I.; Zhivoderov, A. B.; Zlavdinov, L. Z.; Ivanov, O. D.; Klenchin, I. N.; Kolmogorov, Yu. A.; Kotlyarov, V. M.; Kuz'min, Yu. I.; Kuminova, M. V.; Kunin, N. Ya.; Lyubetskiy, V. G.; Melent'yev, M. I.; Morozov, M. D.; Tret'yakov, V. G.; Tychkova, T. V.; Tsaregradskiy, V. A.; Eydlin, R. A.

ORG: none

TITLE: Geophysical sketch map of Kazakhstan

SOURCE: International Geological Congress. 22d, New Delhi, 1964. Geologicheskiye rezul'taty prikladnoy geofiziki (Geological results of applied geophysics); doklady sovetskikh geologov, problema 2. Moscow, Izd-vo Nedra, 1965, 142-154

TOPIC TAGS: ~~Kazakhstan~~ geophysics, map, ~~geophysical mapping~~, tectonics, ~~geosuture~~ ~~Kazakhstan~~ regional study

ABSTRACT: On the basis of regional geophysical and geological investigations (seismic, gravimetric, magnetoelectric), a composite geophysical sketch map of the physical fields of Kazakhstan has been compiled. From this map, the major tectonic zones, deep structures, and geological structural zones are defined. Long zones representing high field gradients in the gravitational and magnetic fields reflect deep geosutures, which seismic sounding data suggest are scarps in the M-discontinuity

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L 42121-66

ACC NR: AT6028379

Among the major structural zones of Kazakhstan defined are: 1) the Turgayskaya, 2) the Petropavlovskaya, 3) the Uspenskaya, 4) the Tokrauskaya, and 5) the Dzhalair-Naymanskaya. Regions of magmatism are also defined. In the tectonic depression zones, contour lines indicate the thickness of the sedimentary cover, overlying the folded basement, and possible oil-bearing formations. Orig. art. has: 1 figure.[DM]

SUB CODE: 08/ SUBM DATE: 06Jan65/ ATD PRESS: 5063

Card 2/2

TRET'YAKOV, V.G.; NIKOLAYEV, S.R.

New data on the mineral potential of the Shubartobe zone in the Chingiz region. Trudy Inst.geol.nauk AN Kazakh.SSR no.4:90-94 '61. (MIRA 14:10)

(Chingiz-Tau--Ore deposits)

SOV/31-60-1-9/20

3(5)

AUTHOR: Tret'yakov, V.G.

TITLE: On the Problem of the Regional Structures of the Eastern Balkhash Region

PERIODICAL: Vestnik Akademii nauk Kazakhskoy SSR, 1960, Nr 1, pp 59-67

ABSTRACT: The author reviews the opinions of a number of scientists on the geological structure of the Eastern Balkhash region, completing them with the data of aerial magnetic survey carried out in this region and the results of geophysical and electric geophysical exploration previously carried out in a part of this territory (Kazgeofiztrest - 1957), he arrives at new conclusions particularly with regard to the Balkhash-Alakul' zone. The magnetic and gravimetric fields of the concerned region fall into three exact zones: a north-east (Tarbagatay), a north-west (Bakanas) and the Central (Balkhash-Alakul') zone. The correlation of the geophysical and geological data shows

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On the Problem of the Regional Structures of the Eastern Balkhash Region

that the changes in the character of the magnetic and gravimetric fields depend on the composition of the rocks as well as on the general structural-tectonic characteristics of the individual areas. The author came to the conclusion that the opinions considering the Alakul' depression as a geological structure which developed according to a uniform plan during the whole Paleozoic is deprived of foundation in the light of the new geophysical data. The present contours of the Alakul' depression are the result of subsidence of the area of depression during the Cenozoic. This process involved the Alakul' platform, the south part of the Bakanas intra-geosyncline and the south-west part of the area of the Tarbagatay anticlinorium. The Alakul' platform of the Paleozoic and Mesozoic appears as a part of an indivisible extensive Balkhash-Alakul' area which offers the characteristics of platform development. From north-east and north the Alakul' platform joins the Tarbagatay anticlinorium and the

On the Problem of the Regional Structures of the Eastern Balkhash Region

Bakanas intra-geosyncline in lines of regional break and overthrust. In a number of cases the overthrust of the outer (with regard to the platform) geosynclinal zones on the platform have a scaly structure. The profile of the Paleozoic and Mesozoic of the Alakul' platform is characterized by the absolutely prevailing occurrence of essentially terrigene sediments, with the exception of the central part of the northern platform edge which during the Post-Tournai stage entered into the geosynclinal period of development (section of an unstable platform). The possibility of large-scale Jurassic development in the area of the Alakul' depression may permit a more optimistic approach to the evaluation of possible petroleum and gas layers in this district. The author mentions the following scientists as having worked on this problem: N.G. Kassin [Ref 1], [Ref 9-12], V.F. Bespalov [Ref 2,3], P.A. Rengarten [Ref 4], B.K. Terletskiy [Ref 16], B.A. Petrushevskiy [Ref 14],

SOV/31-60-1-9/20

On the Problem of the Regional Structures of the Eastern Balkhash Region

V.V. Galitskiy [Ref 6], S.N. Golyshev, B.Ya. Ponomarev.
There are 1 map and 17 Soviet references.

Card 4/4

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15.9300 also 2209

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A006/A001

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 14, pp. 620 - 621, # 59670

AUTHORS: Epshteyn, V.G., Lyubeznikov, V.K., Tret'yakov, V.G., Kamakina, L.T.

TITLE: The Application of Synthetic Resins as Strengtheners of Rubber Mixtures

PERIODICAL: Uch. zap. Yaroslavsk. tekhnol. in-ta, 1959, Vol. 3, pp. 179-199

TEXT: The authors studied the properties of mixtures of butadienestyrene rubbers with resorcin-formaldehyde (I) and anilin-formaldehyde (II) resins. I was introduced to СКС-30 (SKS-30) latex (Defo number 3000, 4.7% Nekal content) and СКС-30 АР latex (SKS-30 AR) (Defo number 500, 6.9% Nekal content). II was added to СКС-25-К (SKS-25-K) acid latex (Defo number 3700, 7.2% esteramins content, 3.5 pH). The mixtures of latex with resin were coagulated or allowed to gelate and dried. Rubber mixtures were prepared on rollers. The specimens were vulcanized at 143°C for 80, 100 and 120 minutes and their physical and chemical properties were determined. Vulcanized rubber with 15 weight portions of I and 43 weight portions of II per 100 weight portions of rubber were highly

Card 1/2

The Application of Synthetic Resins as Strengtheners of Rubber Mixtures

resistant to rupture,[15] tearing and wear. Moreover, II imparts high elasticity to the vulcanized rubber. If the dosage of I is increased to 30 weight portions and that of II to 80 weight portions, the hardness of raw mixtures and vulcanized rubbers increases. The aging time of I until the mixing with latex (up to 24 hours) does not affect the properties of strengthened vulcanized rubbers. If the aging time in the mixture with latex is raised to 96 hours the strength of the vulcanized rubbers is enhanced. Changes in the proportion of resorcin and HCOH in I do not affect the properties of vulcanized rubbers obtained by coagulation. A higher amount of HCOH and temperatures raised to 80°C reduce gelation time. The replacement of resorcin in I by phenol reduces resistance to rupture, tear and the moduli of the vulcanized rubbers. The addition of $\geqslant$ 10% urotropin to I accelerates the gelation process and causes higher strength. The addition of carbon black (30 weight portions per 100 weight portions of rubber) to the mixture of I with SKS-30 AR produces mixtures with exclusively high strength and wear resistance. A slight relaxation of stress and the constancy of the modulus at a temperature raised to 70°C prove the minor part of intermolecular interaction in strengthening resins with I.

I. Farberova

Translator's note: This is the full translation of the original Russian abstract.

TRET'YAKOV, V.G.; SATPAYEVA, M.K.

Mineralogical composition of ores in the Narbay deposit (south-western Lake Balkhash region). Trudy Inst.geol. nauk AN Kazakh. SSR 7:148-155 '63. (MIRA 17:9)

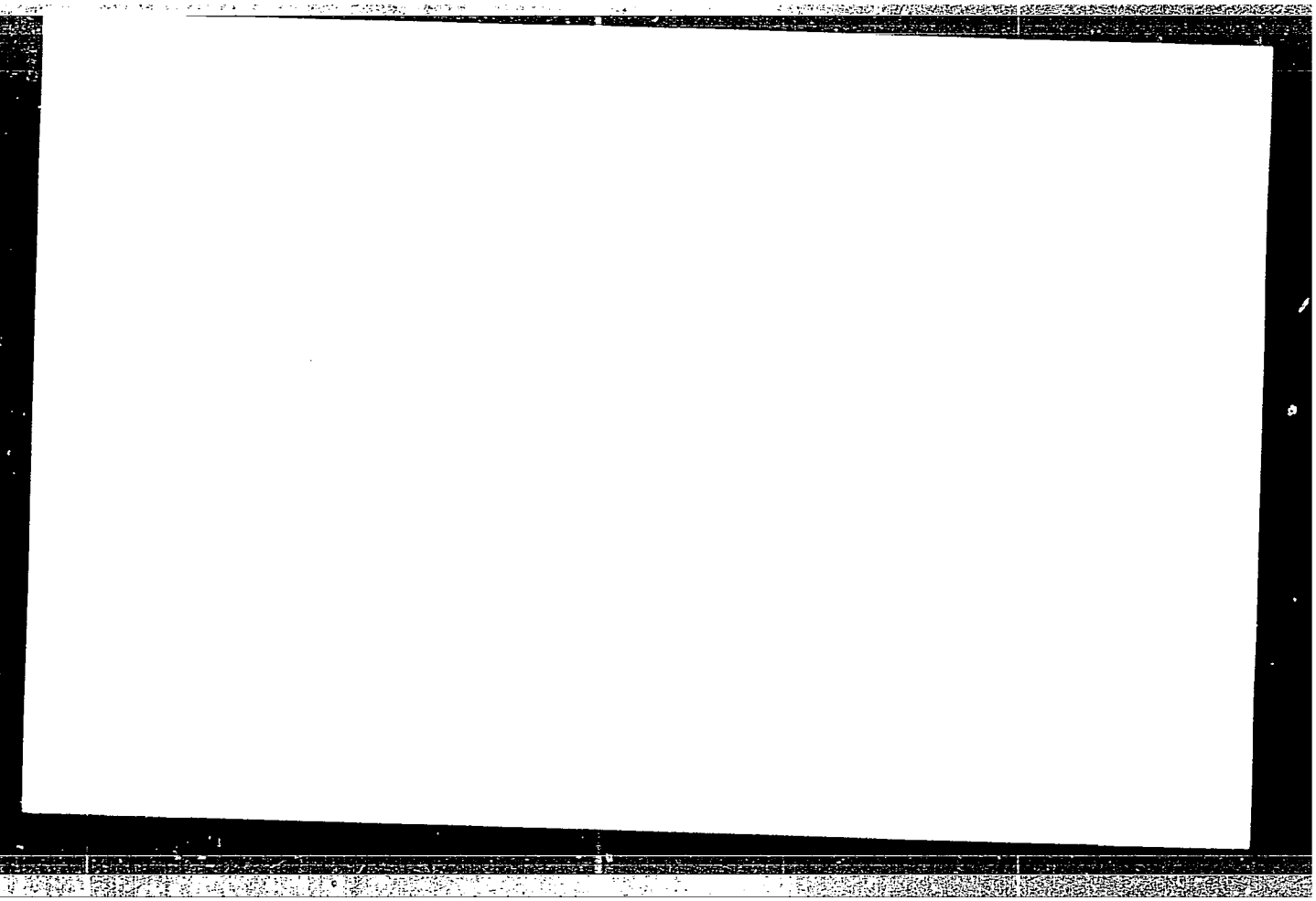
3(5)
AUTHOR: Tret'yakov, V.G. SOV/31-59-3-7/14

TITLE: The Distribution of Some Deep Mobile Zones of the Chingiz-Tarbagatay District of Eastern Kazakhstan According to Aeromagnetic Data (Razmeshcheniye nekotorykh glubinnykh podvizhnykh zon Chingiz-Tarbagatayskogo rayona Vostochnogo Kazakhstana po aeromagnitnym dannym)

PERIODICAL: Vestnik Akademii nauk Kazakhskoy SSR, 1959, Nr 3, pp 54-58 (USSR)

ABSTRACT: This article contains the results of a study of the subterranean structure of the Chingiz-Tarbagatay Rayon of East-Kazakhstan according to the data of an aeromagnetic survey carried out in 1957. This work was part of the general survey of East-Kazakhstan systematically carried out since 1956 by the Kazakhskiy geofizicheskiy trest (Kazakh Geophysical Trust) in support of the geological mapping performed by the state. The surveys of the trust are accomplished with the aid of the ASGM-25 device,

Card 1/3



APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R001756530011-2"

The Distribution of Some Deep Mobile Zones of the Chingiz-Tarbagatay District of Eastern Kazakhstan According to Aeromagnetic Data

deep mobile zones (see graph 1), where in addition to the zones already ascertained by G.N. Shcherba, he has found new ones running not only north-west but also parallel to the latitudes. The author's scheme also differs with regard to the extension of the zones of intrusions of the same age. The area is promising with respect to ore layers (gold, copper, iron). The author recommends special search and reevaluation of formerly discovered mineral points. In addition to the already mentioned scientists, the following names are referred to in the article: N.G. Markova, A.K. Meyster, N.G. Kassin, R.A. Borukayev, V.F. Bespalov, P.A. Rengarten. There are 1 graph and 6 Soviet references.

Card 3/3

VEZLYAKOV, V. G.

5(1) PHASE I BOOK EXPLOITATION SOV 2927

Yaroslavl'. Tekhnologicheskiy institut

Uchenyye Zapiski, Tom II (Scientific Notes, Vol. 2)
Yaroslavl', [illegible] copies printed.

Editorial Staff: A.I.Zaikina, Candidate of Historical Sciences; Docent M.M. Makarov, Candidate of Technical Sciences; Professor M.I. Farberov, Doctor of Technical Sciences;

Resp. Ed.: Professor Yu.S. Musabekov, Doctor of Chemical Sciences

Secretary-Scientist: B.F. Ustavshchikov, Candidate of Chemical Sciences

PURPOSE: This book is primarily intended for industrial chemists and technologists interested in the kinetics of chemical reactions and their related physical processes.

COVERAGE: The twenty-two articles of this collection deal mainly with industrial processes for the preparation of organic compounds, problems of heat physics and general mechanics related to these processes, and with industrial chemical equipment. No personalities are mentioned. References are given after each article.

TABLE OF CONTENTS:

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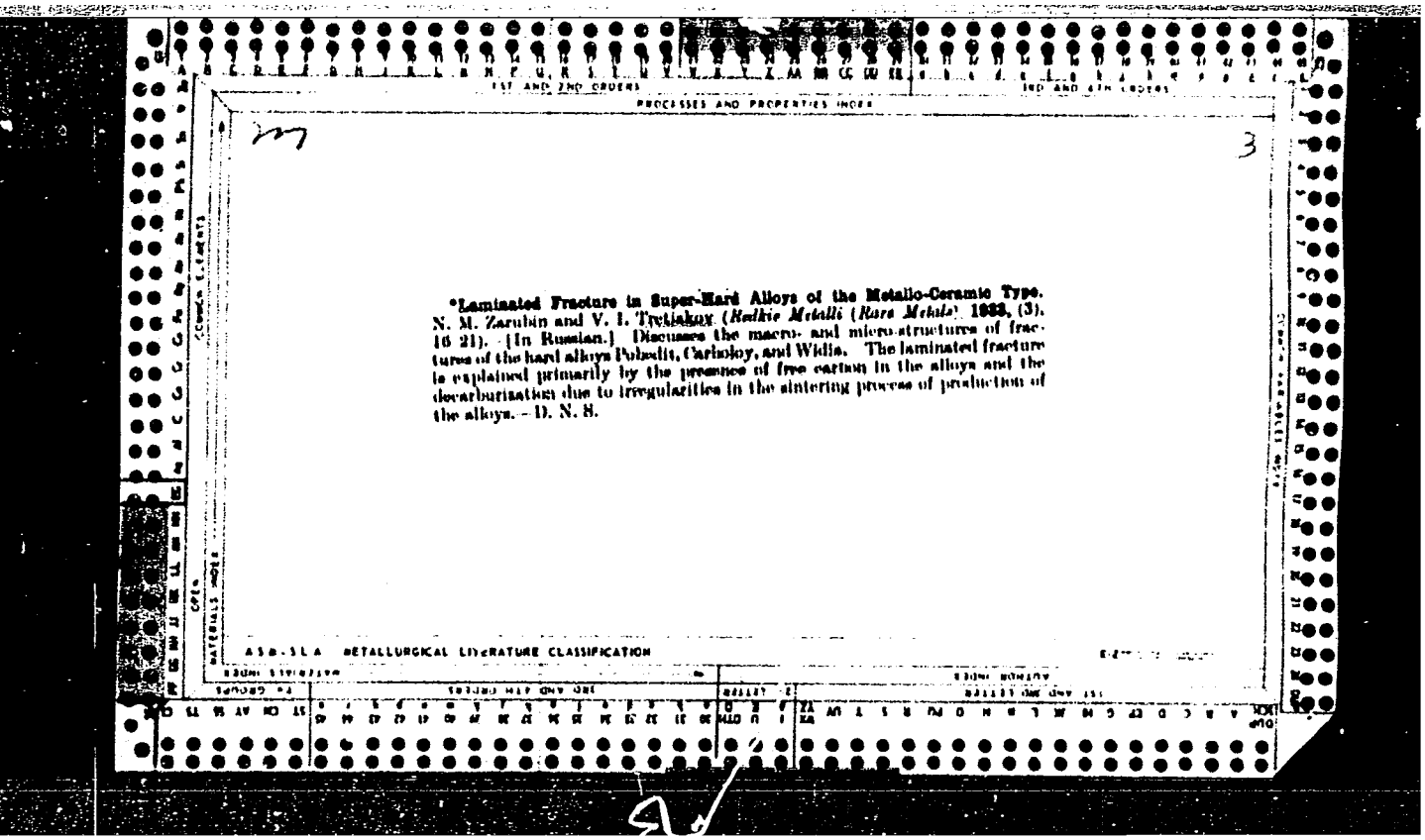
TRET'YAKOV, V.G.

Distribution of some deep, moving zones of the Chingiz-Tarbagatai region of eastern Kazakhstan based on aerial magnetism data. Vest. AN Kazakh. SSR. 15 no.3:54-58 Mr '59. (MIRA 12:6)
(Kazakhstan--Geology, Structural)

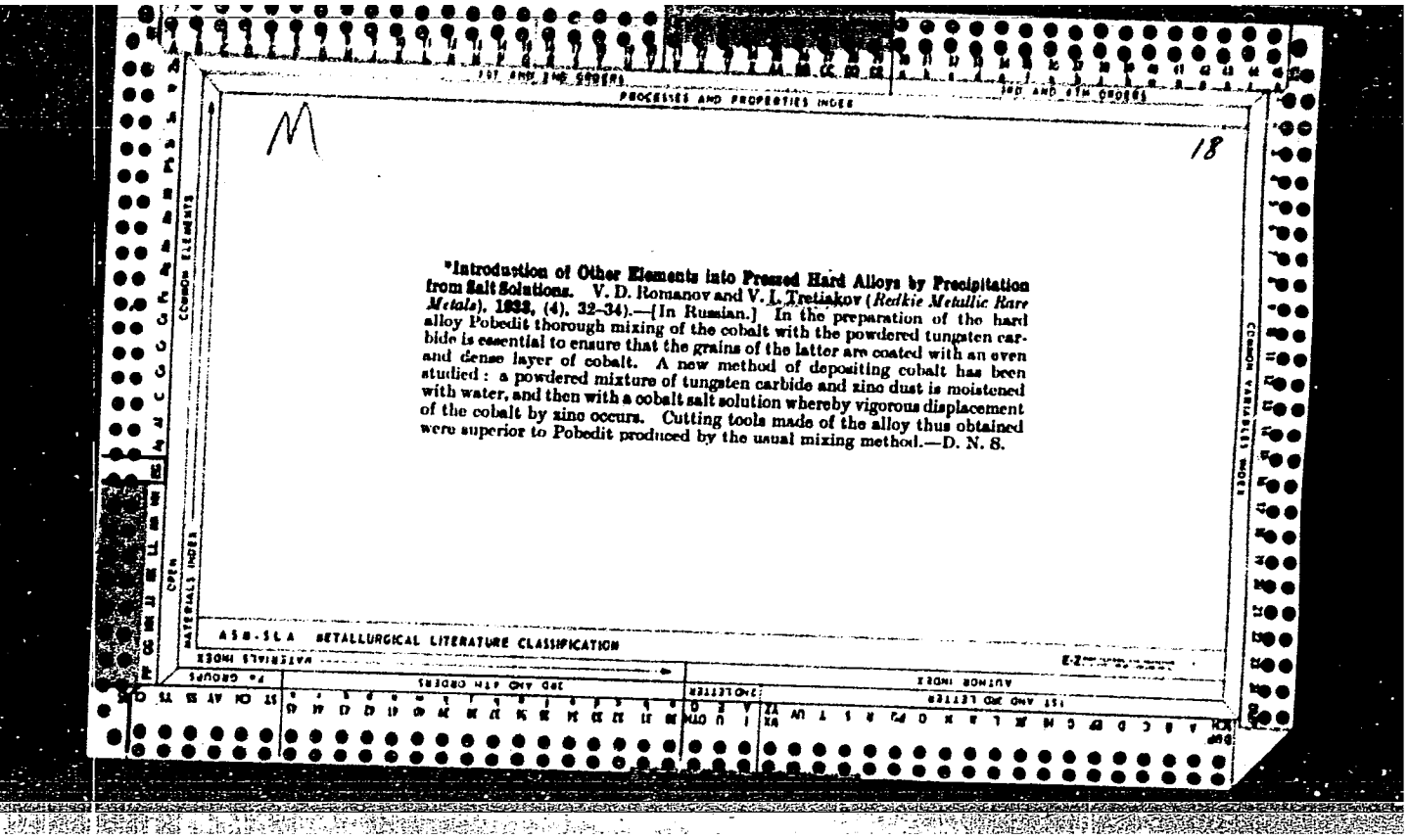


PROCESSES AND PROPERTIES INDEX

3

*Laminated Fracture in Super-Hard Alloys of the Metallo-Ceramic Type. N. M. Zarubin and V. I. Tretiakov (*Redkie Metalli* (*Rare Metals*) 1933, (3), 16-21). [In Russian.] Discusses the macro- and micro-structures of fractures of the hard alloys Pobedit, Carboloy, and Widia. The laminated fracture is explained primarily by the presence of free carbon in the alloys and the decarburization due to irregularities in the sintering process of production of the alloys. – D. N. S.

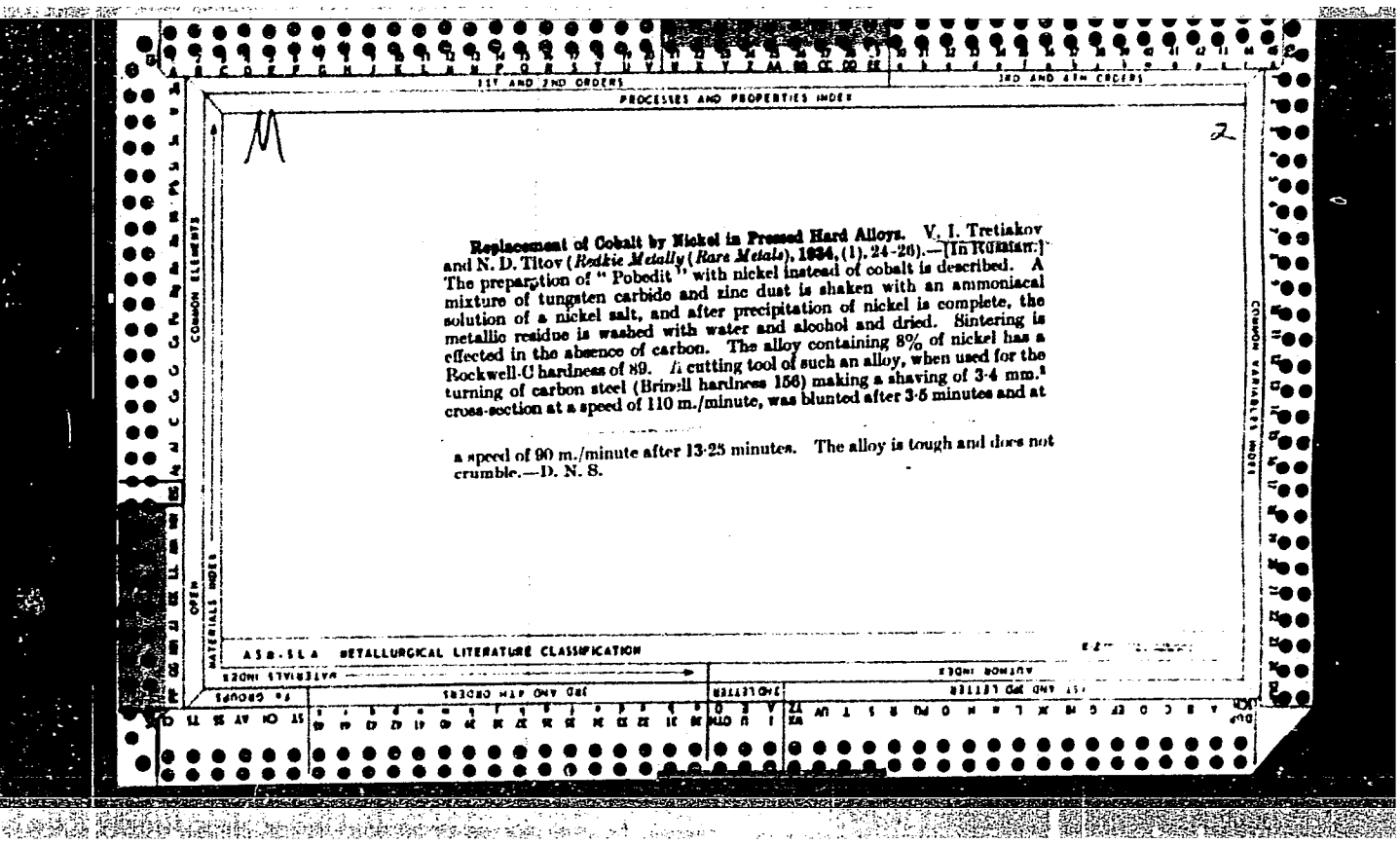
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



M

18

"Introduction of Other Elements into Pressed Hard Alloys by Precipitation from Salt Solutions. V. D. Romanov and V. I. Tretiakov (*Redkie Metallic Rare Metals*), **1933**, (4), 32-34).—[In Russian.] In the preparation of the hard alloy Pobedit thorough mixing of the cobalt with the powdered tungsten carbide is essential to ensure that the grains of the latter are coated with an even and dense layer of cobalt. A new method of depositing cobalt has been studied: a powdered mixture of tungsten carbide and zinc dust is moistened with water, and then with a cobalt salt solution whereby vigorous displacement of the cobalt by zinc occurs. Cutting tools made of the alloy thus obtained were superior to Pobedit produced by the usual mixing method.—D. N. S.



PROCESSES AND PROPERTIES INDEX

M

2

Replacement of Cobalt by Nickel in Pressed Hard Alloys. V. I. Tretiakov and N. D. Titov (*Redkie Metally* (*Rare Metals*), **1934**, (1), 24–26).—[In Russian.] The preparation of "Pobedit" with nickel instead of cobalt is described. A mixture of tungsten carbide and zinc dust is shaken with an ammoniacal solution of a nickel salt, and after precipitation of nickel is complete, the metallic residue is washed with water and alcohol and dried. Sintering is effected in the absence of carbon. The alloy containing 8% of nickel has a Rockwell-C hardness of 89. A cutting tool of such an alloy, when used for the turning of carbon steel (Brinell hardness 156) making a shaving of 3·4 mm.^{2} cross-section at a speed of 110 m./minute, was blunted after 3·5 minutes and at a speed of 90 m./minute after 13·25 minutes. The alloy is tough and does not crumble.—D. N. S.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

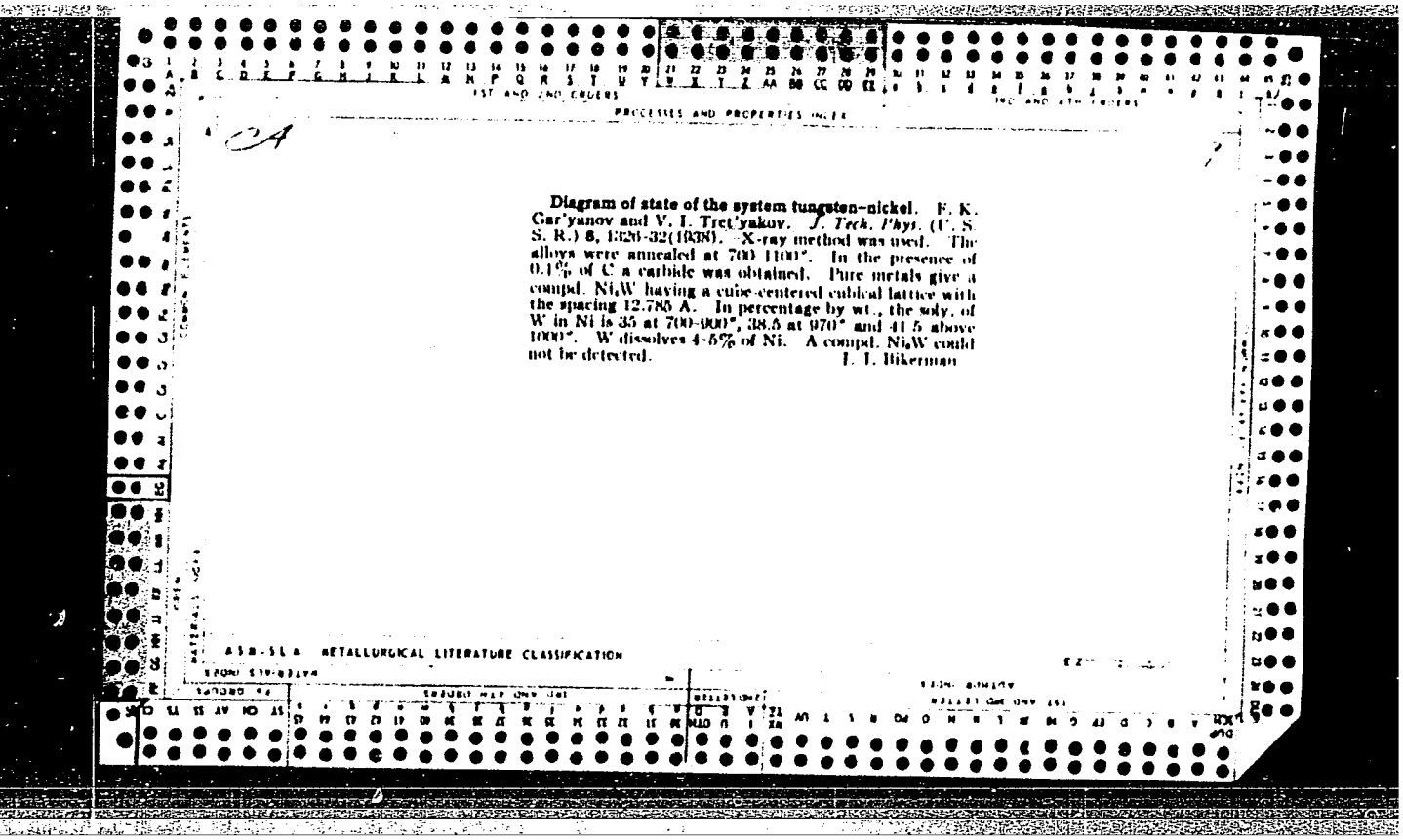


Diagram of state of the system tungsten–nickel. F. K. Gar'yanov and V. I. Tret'yakov. *J. Tech. Phys.* (U. S. S. R.) **8**, 1826-32(1938). X-ray method was used. The alloys were annealed at 700-1100°. In the presence of 0.1% of C a carbide was obtained. Pure metals give a compd. Ni_4W having a cube-centered cubical lattice with the spacing 12.786 A. In percentage by wt., the sol'y. of W in Ni is 35 at 700-900°, 38.5 at 970° and 41.5 above 1000°. W dissolves 4-5% of Ni. A compd. Ni_4W could not be detected. I. I. Bikerman

Tret'yakov, V.I.

SAMSONOV, Grigoriy Valentinovich;UMANSKIY, Yakov Semenovich; RASTORGUYEV, L.N., redaktor; KAMAYEVA, O.M., redaktor izdatel'stva; ORMONT, B.F., professor-doktor, retsenzent; TRET'YAKOV, V.I., kandidat tekhnicheskikh nauk, retsenzent;MIKHAYLOVA, V.V., tekhnicheskiy redaktor.

[Hard compounds of metals with high melting-point] Tverdye soedineniia tugoplavkikh metallov. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1957. 388 p.
(MLRA 10:6)

(Heat-resistant alloys)

TRET'YAKOV, V.I.

Genuine possiblilites for the growth of production. Stroi.mat. 3 no.7:1-3 Jl '57. (MIRA 10:10)

1.Zamestitel' nachal'nika Upravleniya stroitel'nosti i promyshlennosti stroitel'nykh materialov Gor'kovskogo Soveta narodnogo khozyaystva. (Gor'kii--Building materials industry)

TRETYAKOV, V. I. (Moscow)

"Neues Uber Eigenschaffen und Herstellung Metallkeramischer WC-Co-Legierungen,"

paper presented at Intl. Powder Metallurgy Meeting in Eisenach, 28-31 May 1957.

Die Technik, Vol. 11, Nov. 1957.

SOV/137-59-4-9025

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 4, p 247 (USSR)

AUTHORS: Novgorodov, A.S., Tret'yakov, V.I.

TITLE: Blanking Dies Reinforced With Hard Alloys

PERIODICAL: Opyt raboty prom-sti Sovnarkhoza (Sovnarkhoz Mosk. gor-ekon. adm. r-na), 1958, Nr 1, pp 63 - 65

ABSTRACT: Information is given on the tests of using hard alloys in cutting dies for stator plates, rotors of electric machines, transformers. The durability of the diss exceeds that of steel dies by 40 - 80 times; the manufacture costs increase by 2 - 5 times. It is recommended to use for ordinary operations coarse-grained hard alloys with 8 - 12% Co and fine-grained hard alloys with 12 - 15% Co. For complicated dies, the hard alloys should contain 15 - 20% Co. It is expected that the "VK20" alloy will be mostly used. The use of dies reinforced with hard alloys presents high requirements to the rigidity of die design, the condition of presses,

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and to the accuracy of shifting of their movable parts. Measures are described how to comply with the aforementioned requirements; peculiarities in the mechanical treatment of the dies are described as well.

M.Ts.

TRET'YAKOV, V. I.

SOV/3505

Handbook on Machine-Building (Cont.)

Spravochnik po mashinostroitel'nym materialam v chetyrekh tomakh, tom 2: Tsvetnyye metally i ikh splavy (Handbook on Machine-Building Materials in v vols., vol. 2, Nonferrous metals and Alloys) Moscow, Mashgiz, 1959, 639pp.

Card 18/22

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S/137/62/000/002/048/14
A006/A101

15.2400

AUTHORS: Tret'yakov, V. I., Karabasova, I. N., Platov, A. B.

TITLE: On the effect of tantalum carbide admixtures upon some properties of titanium-tungsten sintered carbides

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 2, 1962, 33, abstract 2G 262 ("Sb. tr. Vses. n.-i. in-t tverdykh splavov", 1960, no. 2, 79-81)

TEXT: Specimens of TiC-WC-Co and TiC-WC-TaC-Co sintered carbides were manufactured by sintering in H_2 atmosphere with graphite-grit filling under strictly equal conditions. Comparison experiments were made with 2 types of sintered carbide: bi-phase carbides of type T30K4 and T30K10 and 3-phase type T15K6 carbides. In sintered carbides with TaC admixtures its content was 30% of the sum of TiC + TaC; the TiC content was somewhat reduced, so that the sintered carbides had equal volumes of the TiC-phase. Hardness was tested at 20, 500, 600, 700, 900 and 1,000°C on a ВИМ-1 (VIM-1) machine with a 1-kg load. It was found that H_v of Ta-containing sintered carbides at 20°C had similar or higher values; at 600 - 1,000°C their H_v had a tendency to decrease. It is

Card 1/2

On the effect of tantalum...

S/137/62/000/002/048/144
A006/A101

assumed that these changes in the hardness, when TaC is introduced, are connected with changes in the properties of the carburizing phase.

I. Brokhin

[Abstracter's note: Complete translation]

Card 2/2

18.1152 1045

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S/180/61/000/004/012/020
E193/E383

AUTHORS: Rybal'chenko, R.V., Tret'yakov, V.I. and Chaporova, I.N.

TITLE: The effect of tantalum carbide on the composition and properties of the cobalt phase in the titanium carbide-tungsten carbide-cobalt alloys

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo. no. 4, 1961, pp. 83 - 89

TEXT: The effect of TaC additions on the properties of WC--TiC-Co and TiC-WC alloys has been frequently studied but there are no published data on the effect of this compound on the properties of the Co binder as present in the cemented WC-TiC carbides; hence the present investigation whose object was to determine the boundary of the single-phase region in the Co-rich corner of the TiC-WC-Co and TiC-WC-TaC-Co systems, the melting points of the eutectics formed in these systems, and microhardness of the Co-rich solid solution at room and elevated temperatures. In addition, the effect of excess (free) carbon on the properties

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The effect of tantalum carbide ....

of these alloys was also studied. The experimental alloys were prepared in the following manner: three TiC-TaC-WC alloys were prepared first by adding TaC to a TiO_2 + WC + C mixture and heating the whole at 2 000 - 2 200 °C in hydrogen. The composition of these alloys is given below:

Alloy No.	Nominal composition, %		
	TiC	TaC	WC
1	28	5	67
12	28	11	61
24	22	22	56

After grinding and deoxidising, these alloys in the powder form were either sintered or melted with cobalt to form Co-TiC-TaC-WC alloys containing 10 - 99.8% Co. In some cases, excess carbon was introduced by melting the alloys in a graphite crucible. All

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alloys were examined after a homogenising treatment, consisting of 24 hours at 1 250 °C, followed by furnace-cooling. The results of hardness measurements are reproduced in Figs. 3 and 4. In Fig. 3, the Vickers hardness (H_V, kg/mm^2) is plotted against the test temperature (t, °C), the various curves relating to pure cobalt (Curve 6) and Co-base solid solutions containing TiC (Curve 1), TaC (Curve 2), TiC + WC (Curves 3, 4) and TiC + WC + TaC (Curve 5). In Fig. 4, the microhardness (H_μ, kg/mm^2) is plotted against the carbide content (wt.%) in Co-base solid solutions containing TiC (Curves 1, 2), TaC (Curve 3), TiC + WC (Curves 4, 5) and TiC + WC + TaC (Curves 6, 7); broken curves relate to alloys containing excess carbon. Several conclusions were reached:
1) addition of TaC (in quantities used in the present investigation) to a TiCWC solid solution does not affect the solubility of TiCWC in Co, irrespective of whether there is a deficiency or an excess of carbon in the system. The boundary of the solid

solubility range in the Co-TiC-WC system is shown by the curve in the diagram reproduced in Fig. 1, where the concentration is in wt.%.

2) The 2-phase Ta-bearing alloys have the melting point of the bindary eutectic (Co-TiCWCTaC) approximately 100 °C higher than the melting point of the corresponding eutectic in the [illegible] system. At the same time, the melting point of the ternary eutectic (Co + TiCWCTaC + C) is only 20 - 30 °C higher than that of the Co + TiCWC + C eutectic.

3) Room-temperature hardness of the Co-TiCWCTaC single-phase alloys is higher than that of the corresponding Ta-free materials, this difference persisting up to 400 °C. This means that addition of TaC to cemented carbides should increase the high-temperature strength of the Co binder whereby the performance of these alloys in some applications should be improved. This, however, applies only to alloys containing no excess (free) carbon in the presence of which hardness of the TaC-bearing solutions decreases, although still remaining higher than that of TaC-free alloys. Hence the importance of a strict control of the

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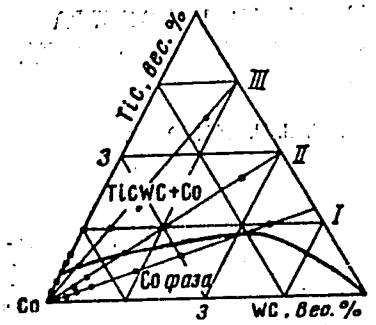
carbon content in commercial-grade, Ta-bearing cemented carbides. L.Ye. Pivovarov and A.Ye. Koval'skiy participated in this work.

There are 4 figures, 3 tables and 7 references: 2 Soviet-bloc and 5 non-Soviet bloc. The English-language reference quoted in the abstract is: Ref. 4 - Miller - Metal Progr., 1953, 63, No. 4, 35.

SUBMITTED: July 22, 1960

Fig. 1:



Card 5/6

29531
S/078/61/006/011/006/013
B101/B147

15 2240

AUTHORS: Rybal'chenko, R. V., Chaporova, I. N., Tret'yakov, V. I.

TITLE: Effect of carbon on the solubility of titanium carbide in cobalt, and some properties of Ti-C-Co alloys

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 11, 1961, 2517-2527

TEXT: The ternary system Ti-C-Co has not been studied as yet. The authors studied the action of C on the solubility of TiC in the system TiC-Co. The following initial substances were used: Co obtained by calcinating cobalt oxalate and reducing the oxide by H_2; TiC obtained by reduction of TiO_2 by carbon black, and Ti metal. The components were fused in a vacuum furnace. Some samples were homogenized in H_2 stream. The following alloys were synthesized: TiC-Co alloys with 0.2-10 % by weight of $TiC_{0.98}$; with 0.6, 0.8, and 1.5 % of $TiC_{0.93}$ and alloys with $TiC_{0.64}$, $TiC_{0.55}$, and $TiC_{0.50}$. Samples with C excess were obtained by

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melting in graphite crucibles. The alloys with 0.2 and 0.4 % of $TiC_{0.98}$ as well as those with 0.6 and 0.8 % of $TiC_{0.93}$ were single-pha
Alloys with a higher TiC content showed a TiC + C eutectic at the polyhedral faces of the Co phase. Alloys molten in H_2 stream at 1350-1450°C showed decarbonization, due to which the solubility of Ti in Co and the melting point of the alloy increased. Microstructural analyses of the samples molten in the vacuum confirmed that the solubility of TiC in Co increases due to decreasing content of C. Samples molten in graphite crucibles showed that the solubility of TiC decreased to 50 %. For alloys saturated with C and having an excess of , the solubility of TiC was not higher than 0.2 %. With decreasing C content it increased up to 5 %. Thermal analysis (determination of solidus points by an МОП-48 (MOP-48) pyrometer) showed that with rising TiC content melting temperature decreased from 1480°C to 1360°C. Melting point of the eutectic TiC + Co was 1365°C (measured by ПР (PP) thermocouple). With decreasing C content it increased to 1440°C. X-ray analysis, performed by K. F. Kuznetsova and L. Kh. Pivovarov under supervision of A. Ye. Koval'skiy by an УРС-50 (URS-50) apparatus, showed that in pure cobalt alloys only cubic Co occurred; in cobalt alloys with 0.2-0.6 % of

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$TiC_{0.98}$, which also contained graphite, only hexagonal Co occurred. C-free alloys behaved differently: Up to a TiC content of 0.6 %, Co was cubic; with 1.5 % of TiC, Co was hexagonal. Microhardness determined by a ПМТ-3 (PMT-3) apparatus showed the following: For pure Co, microhardness was 250 kg/mm^2; for 0.2 % of TiC, it increased to 275 kg/mm^2, and this value did not change with further increasing TiC content. If the alloy contained graphite inclusions (Co + C eutectic), microhardness decreased to 200 kg/mm^2. In alloys containing very little C the hardness of the Co phase increased to 300 kg/mm^2 due to increased solubility of Ti in Co. Change of hardness with rising temperature of solid solutions Co + TiC measured by a ВИМ-1 (VIM-1) apparatus showed a slight difference from the hardness of pure cobalt up to 300°C. At higher temperatures, pure Co is harder. It is evident that the presence of C considerably decreases the hardness of alloys. The melting point of the ternary eutectic TiC + C + Co is 1200°C. Therefore, the synthesis of TiC-Co alloys has to be performed such that rather a loss of C than enrichment by C takes place. Papers by V. N. Yeremenko (Zh. neorg. khimii, 1, 2131 (1956)),

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29531
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Effect of carbon on the solubility...

A. N. Zelikman and D. S. Bernshteyn (Tekhnologiya tsvetnykh metallov (Technology of nonferrous metals) Sbornik trudov, GONTI, M., 1952, v. 23, p. 48) are mentioned. There are 5 figures, 6 tables, and 10 references: 5 Soviet and 5 non-Soviet. The three most recent references to English-language publications read as follows: Max Hansen. Constitution of binary alloys, New York - Toronto - London, 1958; J. Cadoff, J. D. Nielsen, J. Metals, 5(212), 248 (1953); Nishimiro Hideo, Kimuro Hirozo. J. Japan Inst. Metals, 20, 528 (1956).

SUBMITTED: June 3, 1960

Card 4/4

33452

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15 2240

S/126/61/012/006/009/023
E193/E383

AUTHORS: Baskin, M.L., Tret'yakov, V.I. and Chaporova, I.N.

TITLE: Diffusion of niobium in titanium carbide and in the TiC-NbC solid solution of equimolecular composition

PERIODICAL: Fizika metallov i metallovedeniye, v.12, no. 6, 1961, 860 - 864

TEXT: The object of the present investigation was to obtain data on diffusion of Nb in titanium carbide and in the TiC-NbC alloy, indispensable in solving the problems arising in studies of processes taking place during the preparation of so-called complex carbides. To facilitate sintering of TiC specimens, 0.25% Ni was added to the powder mixture, the Ni binder volatilizing completely during subsequent sintering. Sintering of both TiC and TiC-NbC specimens (15 mm diameter, 5 mm thick) was carried out in vacuum in two stages: slow heating (10 °C/min) to about 1 930 °C, followed by 2.5 hours at 2 300 °C (a high sintering temperature was used to ensure that no grain growth would occur during the subsequent diffusion anneals carried out at temperatures below 2 300 °C. The properties of

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sintered compacts are given in Table 2. The method employed for determination of the diffusion coefficients, D, entailed deposition of thin, radioactive Nb^{95} films on one side of polished specimens, and measuring the counting rates on the opposite side as a function of time at the test (diffusion annealing) temperature. The results (average of four measurements) for the diffusion of Nb in TiC are given in Table 3, those for diffusion of Nb in TiC-NbC alloy being given in Table 4. The variation of D in the former and latter cases can be described by:

$$D = 2.4 \exp\left(-\frac{84\ 000}{RT}\right), cm^2/sec \qquad (4)$$

and:

$$D = 4.7 \times 10^2 \exp\left(-\frac{120\ 000}{RT}\right) \qquad (5)$$

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Diffusion of niobium ....

the two values of 84 000 and 120 000 representing the activation energies (cal/mole) for the respective processes. The results obtained showed that addition of NbC to TiC decreases considerably the rate of diffusion of Nb, which indicates that the atomic-bond forces in the TiC-NbC solid solution are higher than those in TiC. Acknowledgments are expressed to L.G. Grigorenko and N.S. Anikina, technicians. There are 3 figures, 4 tables and 7 references: 6 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov (All-Union Scientific Research Institute of Hard Alloys)

SUBMITTED: January 24, 1961

Card 3/3

BK

PHASE I BOOK EXPLOITATION SOV/5931

Tret'yakov, Vsevolod Ivanovich

Metallokeramicheskiye tverdyye splavy; fiziko-khimicheskiye osnovy proizvodstva, svoystva i oblasti primeneniya (Sintered Hard Alloys: Physical and Chemical Principles of Their Production, Their Properties, and Their Fields of Application) Moscow, Metallurgizdat, 1962. 592 p. Errata slip inserted. 3650 copies printed.

Reviewers: G.A. Meyerson, Professor, Doctor of Technical Sciences, V.A. Ivensen, Candidate of Technical Sciences, and M.M. Babich, Engineer; Ed.: I.I. Ol'khov; Ed. of Publishing House: K.D. Misharina; Tech. Ed.: L.V. Dobuzhinskaya.

PURPOSE: This book is intended for scientific research workers and technical personnel of the metallurgical, metalworking, and machine-building industries. It may also be used as a textbook by students at metallurgical schools of higher technical education.

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COVERAGE: The book presents information on the structure, composition, properties, and fields of application of sintered hard alloys based on carbides of refractory metals. Considerable attention is given to the chemical and physical aspects of making sintered hard alloys. Methods of inspecting semifinished and finished alloys are reviewed. Suitable compositions and structures of alloys intended for various fields of application are discussed. The author thanks G.A. Meyerson, Professor, Doctor of Technical Sciences, V.A. Ivenson, Candidate of Technical Sciences, and M.M. Babich, Engineer, for their advice; I.N. Chaporova, Candidate of Technical Sciences, A.Ye. Koval'skiy, and A.I. Baranov, Engineer, for the writing of certain sections; and Ye.N. Kislyakov, Candidate of Technical Sciences, A.B. Platonova, and Ye.A. Shchetilina, Engineers, and V.Ya. Korotkova, for examining several chapters of the book. Each chapter is accompanied by references, primarily Soviet.

EWP(m)/EPF(c)/EWA(d)/ETR/EWP(t)/EWP(b) Pr-4/Ps-4

L 252/5-65

IJP(c) MJW/JD/WW/JG/WH

ACCESSION NR: AR4048251 S/0137/64/000/009/I086/I086 37 38

[illegible] methods were used in investigating the

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ACCESSION NR: AR4048251

korraks, korraks +0.05% carbon, graphitic sandstone, graphitic sandstone with carbon black, and lamp black; the amount of bound carbon does not change. The amount of free carbon increases gradually up to the saturation point of the cobalt phase at sintering temperature. In the presence of structurally free carbon (graphite) in the alloys investigated, $sigma_{bu}$, in comparison to samples sintered in korraks and which do not contain graphite, increases to 20-25 kg/mm^2 at 20°, while at 800° the same samples have the lowest value of $sigma_{bu}$. The wear resistance of [illegible] alloys during steel cutting decreases with an increase in the level of free carbon, while for alloy T30K4 it is almost unchanged.

SUB CODE: MM ENCL: 00

Card 2/2

TRETYAKOV, V. I., VASHCHENKO, D. M., PAVLOVICH, N. V., TERENETSKOY, M. K., SHTMKO, I. G. and FISHMAN, Ts. E.

"Thermal physical conditions of extraction of low-molecular combinations of meets of polymer."

Report presented at the Section on Thermal-physical Properties and Non-stationary Thermal Capacity, Scientific Session, Council of Acad. Sci. Ukr SSR on High Temperature Physics, Kiev, 2-4 Apr 1963.

Reported in Teplofizika Vysokikh temperatur, No. 2, Sep-Oct 1963, p. 321, JPRS 24,651. 19 May 1964.

BASKIN, M.L.; TRET'YAKOV, V.I.; CHAPOROVA, I.N.

Niobium diffusion in titanium carbide in a solid solution of TiC-NbC of equimolar composition. Fiz. met. i metalloved. 12 no.6: 860-864 D '61. (MIRA 16:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov.

BASKIN, M.L.; TRET'YAKOV, V.I.; CHAPOROVA, I.N.; Prinimali uchastiye: ANIKINA, N.S.; GRIGORENKO, L.G.; CHEREDINOV, A.A.

Diffusion of tungsten in monocarbides of tungsten, tantalum, and in TiCWC and TiCWCTaC solid solutions. Fiz. met. i metalloved. 14 no.3:422-427 S '62. (MIRA 15:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov.

(Tungsten) (Diffusion)

41520
S/126/62/014/003/011/022
E202/E492

21.2400

AUTHORS: Baskin, M.L., Tret'yakov, V.I., Chaporova, I.N.

TITLE: Diffusion of tungsten in monocarbides of tungsten tantalum, titanium, and in solid solutions of TiCWC and TiCWCTaC

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.3, 1962, 422-427

TEXT: Diffusion coefficients of tungsten (D), and activation energies (Q), during the diffusion of W in TiC, WC, TaC and in solid solutions comprising: 93% TiC + 7% WC; 77% TiC + 23% WC; 59% TiC + 34% WC + 7% TaC and 48% TiC + 37% WC + 15% TaC (all % mol), were determined. A method of introducing and anchoring on the surface of the sample radioactive tungsten was developed. Considerable difficulties were experienced in compacting and high temperature diffusional annealing. Chemical composition including combined and free and the stoichiometric C content, lattice parameter of the original constituents and their origin were given as well as the details of the compacts. The latter included specific gravity, lattice parameter, porosity,

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Diffusion of tungsten ...

grain size and Ni content (spectrometrically). L. Foster's method (J. Amer. Ceramic Soc., v.33, no.1, 1950, 27) of compacting was used throughout. D values for the diffusional annealing at 2130, 2170, 2230 and 2300°C were determined for all the above compositions and the Q and Do values calculated therefrom. It was found that TiC had the lowest Q (115 ± 8 kcal/mol) while 50% TiC + 34% WC + 7% TaC had the highest (225 ± 27 kcal/mol). Addition of TaC to the solid solution of TiCWC substantially increased Q. Certain compositions of TiCWC and TiCWCTaC showed maximum values of Q. The presence of these maxima were explained by the energy levels and the incomplete 3d shell in titanium. There are 4 tables.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov (All Union Scientific Research Institute of Hard Alloys)

SUBMITTED: December 26, 1961

Card 2/2

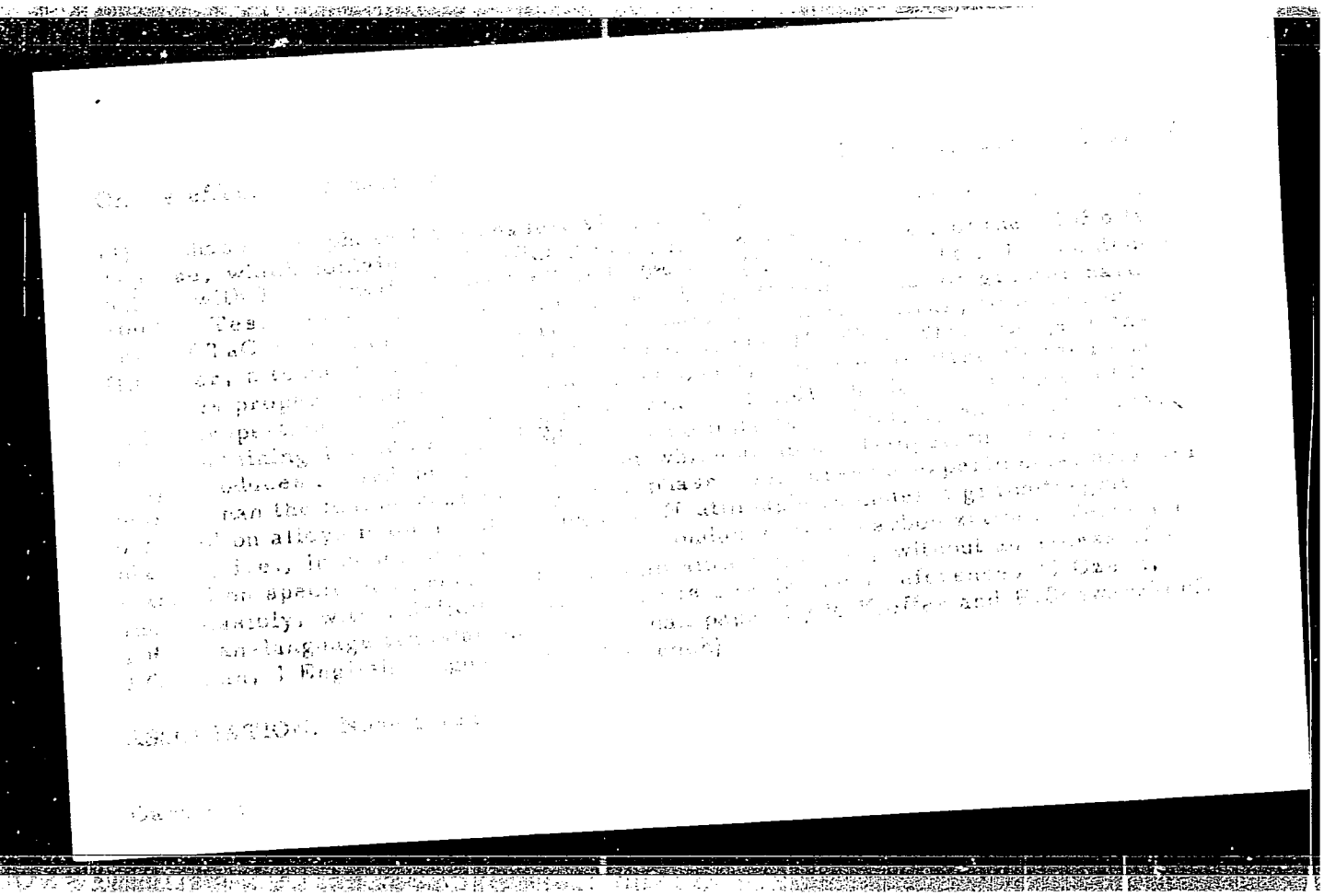
S/736/60/000/002/003/007

[illegible] Mal'tsova, L.N., Plavov, A.B.

[illegible] carbide on some properties of TiW hard alloys [illegible] munication).

[illegible]-issledovatel'skiy institut tverdykh splavov [illegible]. Moscow, 1960. Tverdyye splavy. pp. 78-87.

[illegible] data are available on TiW hard alloys with Ta [illegible] are so widely used in foreign industry. Much has [illegible], among which Miller, //no initials//, Metal Pro- [illegible] the increased strength, crack resistance, and [illegible] hardness of Ta-containing alloys as compared to alloys [illegible] ings either are qualitative only or are supported [illegible] which differ not only in TaC content, but also in [illegible] manufacturing techniques (see especially [illegible] ion, v. 71, 1951, 1081). The present paper [illegible] formed in a metallographically consistent [illegible] and TiC-WC-TaC-Co alloys, all of which were [illegible] conditions. Two types of alloys were tested



TRET'YAKOV, V.I.; KARABASOVA, I.N.; PLATOV, A.B.

Effect of tantalum carbide additions on certain properties of titanium-tungsten hard alloys. Sbor. trud. VNIITS no.2:79-91 '60. (MIRA 15:2)

(Titanium-tungsten alloys--Testing)
(Tantalum carbide)

TRET'YAKOV, V.I., inzh.

Automation of the loading of cableway cars. Mekh.i avtom.proizv. 15 no.11:35-38 N '61. (MIRA 14:11)
(Cableways) (Loading and unloading)
(Automatic control)

RYBAL'CHENKO, R.V.; CHAPOROVA, I.N.; TRET'YAKOV, V.I.

Influence of carbon on the solubility of titanium carbide in cobalt and some properties of Ti - C - Co alloys. Zhur.neorg.khim. 6 no.11:2517-2527 '61. (MIRA 14:10)
(Titanium-cobalt alloys) (Systems (Chemistry))

TRET'YAKOV, V.I., inzh.

Automation of the loading of cableway cars. Mekh.i avtom.proizv. 15 no.11:35-38 N '61. (MIRA 14:11)
(Cableways) (Loading and unloading)
(Automatic control)